Work practices in PyPy: an exploration of sprint-driven software development

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Project Area	GSD 4
Project Title	Social, Organizational, and Cultural aspects of Global Software Development (socGSD)

Research purpose

❑ An exploratory study aimed at investigating the collaborative work practices of this particular Open Source community

❑ Focused on understanding how sprint-driven development is achieved and its implications on collaboration in the community

Fig. 1 Communities of Practice (Source: Wenger 1998)

The PyPy community

❑ Was initiated in early 2003 with the objective of implementing a Python interpreter using Python

❑ Received partial funding from the EU between December 2004 and March 2007

❑ Sprint systematically, about every 6 weeks or so, always in different locations to accommodate as wide a group of participants as possible

Research method

Ethnographically-informed work practice studies

Analysis of Limerick Sprint (August 2006)

❑ Direct observation and in situ conversations

❑ Project administrator organized workshop for local researchers

❑ Video recordings of daily status meetings and workshop

Fig. 2 Limerick Sprint

Analysis of Trillke Sprint (March 2007, Germany)

❑ Participant observation and in situ conversations

❑ Audio recordings of all group meetings

Fig. 3 Trillke Sprint

Analysis of online activities (August 2006-January 2008)

❑ Structured analysis extending back retrospectively as well as following events continuously

Related research

The Open Source phenomenon

B. Fitzgerald, "The Transformation of Open Source Software," MIS Quarterly, vol. 30, pp. 587-598, 2006.

A. Mockus, R. Fielding, and J. D. Herbsleb, "Two Case Studies of Open Source Software Development: Apache and Mozilla," ACM Transactions on Software Engineering and Methodology, vol. 11, pp. 309-346, 2002.

Methodologies

W. Sack, F. Detienne, N. Ducheneaut, J.-M. Burkhardt, D. Mahendran, and F. Barcellini, "A Methodological Framework for Socio-Cognitive Analyses of Collaborative Design of Open Source Software," Computer Supported Cooperative Work (CSCW): An International Journal, vol. 15, pp. 229-250, 2006.

Studies of Open Source communities

N. Ducheneaut, "Socialization in an Open Source Software Community: A Socio-Technical Analysis," Computer Supported Cooperative Work (CSCW): An International Journal, vol. 14, pp. 323-368, 2005.

G. v. Krogh, S. Spaeth, and K. R. Lakhani, "Community, joining, and specialization in open source software innovation: a case study," Research Policy, vol. 32, pp. 1217-1241, 2003.

Conclusions and further work

Publications to date

Sigfridsson, A., G. Avram, et al. (2007). Sprint-driven development: working, learning and the process of enculturation in the PyPy community. Open Source Systems '07. Limerick, Ireland.

Conclusions

❑ Sprints facilitate situated learning in the project, because it allows developers to:

- collaborate using hands-on approaches such as pair programming
- socialize and form stronger personal relationships

❑ This also helps to facilitate the expansion of the community through enculturation:

- It helps new members to achieve both the necessary technical knowledge and the community membership needed to contribute to the project

Next steps

❑ The goal is to use four empirically based analytical categories to explain in detail how sprints extend the distributed collaboration

❑ Email questionnaire to selected core members of the community

❑ A journal paper is currently in production

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